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BUREAU OF PLANT INDUSTRY

WEEKLY STATION REPORTS

OF THE DIVISION OF

DRY LAND AGRICULTURE

BUREAU OF PLANT INDUSTRY

U. S. DEPARTMENT OF AGRICULTURE

JUL 4, 1936

Not for publication without
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REPORT FOR THE WEEK ENDING JULY 4, 1936.

HAVRE:

Another hot and dry week prevailed. The maximum temperature of 105° on June 27 established a new station record for the month. Wind movement and especially evaporation were excessive for this time of the year.

Dry land alfalfa and grasses have been harvested, experimental yields ranging from practically nothing to about 250 pounds per acre. Winter rye on well prepared fallow produced only 300 pounds of hay, the smallest yield in station experience. A first cultivation of fallow on general farm fields is in progress.

Native ranges are the poorest in years, and livestock shipments already have begun. Says plant bugs have appeared in large numbers in many grain fields. Grasshopper damage also is widespread.

H. R. Sumner, of the Northwest Crop Improvement Association, Minneapolis; E. L. Davis of the U. S. Entomological Laboratory, Bozeman; and E. H. Sandberg of the Resettlement Administration, Denver, were among station visitors during the week.

Maximum temperature, 105°; minimum, 50°; precipitation, 0.12 inch.

JUDITH BASIN:

The first three days of the week were relatively cool with no precipitation, but the last four days were extremely hot. On Friday the wind blew steadily from the south and carried numerous grasshoppers to the Station and vicinity. This area had previously been comparatively free of these pests.

With the continuation of drought conditions, the possibility of a normal crop return, even on fallow land, has passed. The question of roughage for the coming winter is especially acute, and wells and other water sources are weakening rapidly. Forty-two acres of winter rye was harvested for hay and yielded only 10 tons.

The amount of rainfall recorded here since January 1 or since April 1 is only slightly more than that of the same periods in 1934. The precipitation for May was 1.03 inches as compared with a normal rainfall of 2.16 inches, and for June it was 1.74 inches against an average of 2.79 inches.

Arrangements are being made to hold the annual Judith Basin farmers' picnic at the Station July 16.

Maximum temperature, 100°; minimum, 42°; precipitation, trace.

HUNTLEY:

High temperatures and drought continued throughout the week. One day of hot wind turned many grain heads white and hastened the deterioration of most dry land crops. Corn and sorgo have suffered the least from the generally unfavorable conditions. Winter wheat and rye are ripening rapidly, and the latter will be ready for cutting within the next few days.

Grasshoppers appear to be decreasing in numbers, but despite continued poisoning enough of the insects remain to severely injure crops. Barley has been the favorite food crop of the grasshoppers

this season with oats and corn as second choice. Practically all the barley in Field G has been eaten off to the ground. Seedling alfalfa on both the irrigated and dry land has also suffered heavily.

Because of the destruction of range feed by grasshoppers and drought, local stockmen are moving large numbers of cattle and sheep out of the country. Much of this livestock is going to market, but some is being taken to mountain pastures where conditions have been less severe.

Field work consisted of cultivating corn, fallow, and miscellaneous plots where crop stands were destroyed by grasshoppers.

Maximum temperature, 104°; minimum, 47°; precipitation, none.

SHERIDAN:

The hot, dry weather continued on over the week with consequent further deterioration of the crops that are left. Winter wheat in a part of the varieties, 1 plot in the rotations, and extra tillage was cut. In the varieties, on fallow, where the stand was thin, the heads are fairly well filled. Damage by grasshoppers continues to increase, much of the corn now being cut off by them. Corn has been continuing a fair growth but curls badly during the day.

Maximum temperature, 106°; minimum, 46°; precipitation, 0.03 inch.

DICKINSON:

No significant rain has fallen during the last two weeks, and the drought has greatly increased in intensity. High temperatures have prevailed with a new maximum of 109° set for the month of June on the 24th. Evaporation from the tank was 10.728 inches, a new record for June, and the total for the three months, April - June, 23.354 inches, is the greatest amount of record for these three months. Rainfall for the six months ending July 1 was 3.30 inches. This is the least ever recorded here in the 6-month period. Going back to September in 1935, when the drought started, the total of 4.60 inches for 10 months is also the lowest of record for that period.

Crops have continued to deteriorate. A few plots of grain on summer fallow may mature enough to thresh, but on most of the plots even on fallow, wheat, oats, and barley are so short the grain cannot be recovered with the binder. On other tillage methods the crop is a total failure. Corn on the station and in the locality will provide very little feed unless heavy rains come soon. Most of the corn did not germinate until after the shower on June 15, and it has grown little since.

Cattle are being moved out for shipment, as both feed and water are gone in some places. Heavier shipments so far have gone out from the southwest part of the district.

About 200 farmers have been shown over the station work during the past two weeks. These came in small groups with the County Agents from six southwestern counties. A group of 10 from Hazelton, N. Dak., visited the station June 28. P. J. Olson, Assistant Director, and Dr. Tyner, Soils Department, State College Station, Fargo, N. Dak., and W. E. McQuilkin, Land Utilization Division, Resettlement Administration, Lincoln, Nebr., were visitors at the station.

Maximum temperature, 106°; minimum, 49°; precipitation, trace;
Precipitation in June, 0.92 inch.

MANDAN:

Agronomy - Drought continued throughout the week. About the only change is that the grains are dried up a little more. The days have not been extremely hot, and the evenings have been cool. Plowing for late fallow and plowing the land upon which peas were seeded was done on July 1.

Maximum temperature, 98°; minimum, 50°; precipitation, none.

Cooperative Grazing Experiment - The steers were weighed on June 30. The gains per head for the month and the period on pasture are shown in the following table. It is not known if the gains are normal or not. It is the first time we have had yearlings, and do not know what their June gain should be. The average for 2-year-olds on good pasture was about 100 pounds per head for June. It is also the first time the pastures were ever in so dry a condition during June.

Pasture (acres)	Number steers	Gain per head. (pounds) June	Gain per head. (pounds) 35 days
100	10	59.5	93.5
70	10	61.5	92.0
50	10	63.0	103.0
30	10	69.5	111.5
70 (Rot.)	14	57.9	95.8
7 (Crested wheatgrass)	4	8.8*	41.3**
12.5 (Mixed)***	6	60.8	81.7
93 (Reserve)	13	71.9	81.9

* 20 days.

** 25 days.

*** Practically all the feed was yellow sweet clover.

Arboriculture - Hoeing in nursery fields, watering seed beds, and irrigating a few tree seedlings which had recently emerged in spite of the drought has been carried on during the week. Caragana and ash seedlings planted in 1935 are now at a standstill, and it is doubtful if they will make suitable stock for 1936. Collection of caragana seed has now been started. There is apparently a good crop on the station this year.

Visitors for the week included, P. V. Cardon, Forage Crops and Diseases; J. Allen Clark, Cereal Crops and Diseases; Otto Brown, S.C.S., Washington, D. C.; H. J. Clemmer and Williams, S. C. S., Rapid City, S. Dak.; I. C. Owens, S. C. S., Mankato, Kans.

C. E. Leighty is leaving the station on Sunday evening for Dickinson, N. Dak., and J. M. Stephens on Tuesday for Havre, Mont. They expect to be at Bozeman on the 12th.

ARCHER:

The weather during the week ending July 4 continued dry and at times hot with no prospects of rain. Small grain crops on fallow and on land which had been in row crops for two to three years remain, but they are in a very serious condition. Many farmers are cutting what remains of their small grain crops for feed. Corn is rolling badly, and potatoes and beans are in great need of moisture. Colorado potato beetles are present in sufficient numbers to seriously menace the potato crop. Spraying for the destruction of this pest was started July 3. In this section the prairie grasses are sufficiently dry to crunch under one's feet.

During the week most of the corn was cultivated the second time. Hay plots were harvested and the crop weighed. The average yield of crested wheatgrass was about 500 pounds per acre. Weeding operations continued.

W. L. Quayle of the University of Wyoming, and J. Allen Clark of the Division of Cereal Crops and Diseases, Washington, D. C., visited the station June 29.

Maximum temperature, 96°; minimum, 46°; precipitation, 0.04 inch.

NORTH PLATTE:

A light shower and some hail fell at the station on July 1. Little damage was done by the hail. No rain of any consequence has fallen at the agronomy farm during the last 30 days. Total rainfall for June was 1.71 inches.

All the small grain except the spring wheat and a few plots of oats has been harvested. Much of the later wheat is quite shriveled, and the barley has dried up rather than ripened normally, so it will be very light. The corn is making normal growth but is in need of moisture.

Grasshoppers are doing considerable damage in this area. The oats are being cut somewhat green to save as much grain as possible. In places cornstalks have been eaten off the ground.

Maximum temperature, 104°; minimum, 53°; precipitation, 0.16 inch.

AKRON:

There were showers in the locality early in the week, but the precipitation at the station was small. June passed with 3.04 inches which was well above the average of 2.37 inches, practically all falling over the first 10-day period. January - June precipitation was 0.74 inch above normal.

The chief climatic characteristic of the later half of June was the extreme heat, which greatly accentuated the effect of drought. There were 6 days with a temperature of 100° or above, whereas the greatest number of such days in any one year heretofore was 2, and the total number of such days, previous to this, in the 27-year record was only 6.

Harvesting was started on the field plots and in the nursery June 30. This is the earliest date that harvesting has ever been started at this station. By the week-end, the bulk of the rotation and variety oats and barley have been harvested. Practically all station winter wheat is ripe and ready for harvest. This grain on fallow land preparation has filled without shrinking unduly.

Besides harvesting in the nursery and on the field plots, a weed clean-up program was inaugurated in preparation for Field Day next Thursday.

Mr. Hepperly and two other officials, Burlington Railroad Staff at Denver, visited Tuesday.

Maximum temperature, 100°; minimum, 50°; precipitation, 0.09 inch.

HAYS:

Another week of hot, dry weather with gentle but hot winds has gone into history. The drought was interrupted by a 0.15 inch rain which only delayed combine harvesting one-half day.

Spring wheat, which developed a good straw growth and perhaps better than average length heads, suffered extremely from the drought and heat from the time it was fully headed until it finally dried up and was harvested June 29. To the casual passer-by it looked like from 20 to 30 bushel wheat, but the heads contain almost no grain.

Corn and sorghums are still small. These crops were planted shortly after the heavy rains in May while the ground was most too moist and sticky. Germination was fair, however, but the top soil dried out soon after planting, which resulted in a poor physical condition which still exists. The crops look fair, but the roots have not developed well and growth is slower than it should be. There is sufficient moisture in the subsurface soil for present needs, but the sorghums are beginning to wilt, and the corn has been wilting for several days due to the poor root system.

The soil condition and the drought are not so serious a menace to the crops at present as the grasshoppers, which threaten complete destruction of them. The corn is not large enough to furnish much forage or shade for the grasshoppers, and, as a result they are prone to attach themselves to the shady side of a stalk of corn and eat on the stalk until it breaks off. Their work, after it is done, looks more like and was at first thought to be the work of rabbits. Ordinarily, during past experiences with hoppers, they have confined their work largely to the foliage and it was possible to kill them with poison bait before they destroyed the corn. However, it is much different when they commence on the stalk as they are doing this year. When the stalk is cut off the plant is ruined. At present it appears doubtful if the continuous inflow of hoppers from surrounding fields can be killed before they destroy the corn. Thus far they are not working much on the sorghums.

Work during the week consisted of harvesting the spring wheat, harrowing the sorghum plots planted with the furrow opener planter, spreading poison bran mash for grasshoppers and a continuation of combine harvesting of winter wheat which was finished July 3.

Excellent success was experienced this year with the plot combine after it was once tuned up. The largest single day's work was the combining of 72 tenth-acre plots. Incidentally, it may be hinted, that day was slightly longer than 8 hours.

Maximum temperature, 107°; minimum, 58°; precipitation, 0.60 inch. The month of June included 10 days of maximum temperatures of 100° or more, 2 of which reached 111°. Total precipitation, 0.60 inch.

GARDEN CITY:

The total rainfall for June was 0.73 inch, normal is 2.83 inches. The crops are not making much growth, but are looking fairly well, considering the drought. The grasshoppers have done little damage here as yet, but they are rather a serious factor to the north and east. Field work consisted of thinning the replant of the row crops and mowing the weeds on the wheat plots.

D. A. Savage's men from the Hays station are here this week, working with grasses of the surrounding country in connection with the Soil Conservation Service.

Maximum temperature, 102°; minimum, 61°; precipitation, 0.02 inch.

TUCUMCARI:

The weather has been calm, clear, and marked by normal temperatures the past week. Precipitation of 0.15 inch July 1 and 0.08 inch late in June brought the total for the year to date to 4.61 inches. Precipitation the first 6 months of the year was 63 percent of normal, and for the past 30 months it has been 58 percent of normal.

Young row crops are growing rapidly, and during the week a large amount of thinning has been performed. Knifing of plots and increase land has progressed, and a late planting of Sudan grass and drilled sorgo on increase land were put in.

Some wheat on the plains portion of the county is being harvested, but the percentage of harvested acreage is very low, with yields light. Much wheat was plowed up under the benefit plan. Indications point toward a very heavy wheat acreage the coming fall, for no doubt more land than usual will be fallowed and kept reasonably clean this summer.

Crops, ranges, and trees look well at the present time, but in this immediate vicinity rain will soon be needed, for there has been no storage of moisture worth the name for practically three years.

Maximum temperature, 99°; minimum, 59°.

DALHART:

A rain of 0.50 inch a week ago today revived hopes of favorable growing conditions considerably. The week was warm and with the high soil temperatures and no crop shading this moisture was soon dissipated. Native grasses are rolled and dried. Annual weeds are dying in sod land. Corn, except for local areas, is standing the drought well. The early sorghums are putting forth new growth, but the later planted sorghums have made but little growth during the week. The early planted sorghums and corn have now reached that stage in growth where, without additional rains, they will soon begin to suffer.

Work during the week has consisted of thinning sorghums (this task is completed except for a few hours work), plowing late fallows, hoeing weeds, and some miscellaneous tillage work.

Maximum temperature, 102°; minimum, 58°; precipitation, 0.50 inch.

BIG SPRING:

Although weather conditions have remained hot and dry, during the past week, crops in general have made a rapid growth. Some of the drilled plots of Sudan grass and kafir are burning; this would indicate that there was not a great amount of stored moisture for the row crops to go on. However, they are all young and probably can go a week or so longer without suffering very materially.

Wheat plots were threshed during the week; yields ranged from failures on most plots to 8 bushels per acre on disked cowpea ground.

With the exception of June 15 date of seeding of sorghums, the thinning of all plots was completed during the week. Other work has consisted of cultivating and knifing plots and increase fields. At present the weed situation is well under control, but if it rains soon,

it will probably not remain that way without considerable hoeing.
Maximum temperature, 98°; minimum, 62°; precipitation, none.

LAWTON:

The June rainfall of 3.63 inches was recorded as follows: June 5, 3.35 inches, 6th, 0.11 inch, and 22nd, 0.17 inch. This form of distribution provides a long, dry period that leaves plant growth of all kinds badly in need of moisture. A heavy infestation of chinch bugs that is generally and widely distributed, severe damage by web worms in many localities, and rapidly increasing numbers of grasshoppers intensify and augment dry weather injury to crops.

Station crops have not been damaged by web worms or grasshoppers to date. The web worm menace to cotton and alfalfa has probably disappeared, but grasshopper injury appears very likely. In many localized areas in this vicinity the damage is severe.

Temperatures have varied from 92° to 102° since the 22nd, but the average is about normal.

Threshing of station crops of small grain was completed July 2. Wheat yields range from 0 to approximately 18 bushels per acre, and the quality was generally good. Approximately 34 acres of oats, grown for feed, produced an average yield of 19 bushels per acre.

It is the general concensus of growers and buyers that 50 percent of the wheat acreage in Comanche County was abandoned, and that the acreage harvested produced a yield of 6 to 8 bushels per acre.

F. A. Fenton and E. Hixson, Department of Entomology, A. & M. College, Stillwater, Okla., visited the station during the past week while making plans for grasshopper control in this county.

WOODWARD:

Temperatures ran above 100° on four days of the past week, and no precipitation was received to relieve the drought. No rain has occurred in this vicinity since June 5. Pastures have a parched, brown appearance, and many of the older trees are showing effects of dry weather.

Most of the wheat harvesting over the country has been completed, and in some cases fairly high yields have been reported. Farmers are now cultivating row crops which had been neglected during wheat harvesting. Most of the sorghums are yet too small to require much moisture, but a good rain would speed up their growth.

Station work for the week consisted mainly of thinning sorghums and installing water main.
Maximum temperature, 104°; minimum, 63°; precipitation, none.

PENDLETON: (Report for the two weeks ending July 4, 1936.)

Weather during the past two weeks has been ideal for the ripening wheat crop. Only five days of 90° or above have occurred. The winter wheat is ripening normally, some winter wheat in the Walla Walla Valley is being combined. Spring wheat is beginning to color up, and good yields are practically assured. Present indications are that spring wheat yields will be higher than those of winter wheat. Harvest of canning peas is progressing rapidly. The pea weevil is becoming more numerous, and a portion of many fields have been condemned for canning on account of weevil. These weevily fields are either plowed under for green manure or allowed to ripen for seed. Field and garden peas on

the station were cut on the 3rd. The second crop of alfalfa was cut on the 2nd. The annual field day was held on the 25th with 150 present, the most interested crowd since the establishment of the station. H. R. Sinnard, architect for the Oregon Experiment Station, was here one day working on plans for another cottage on the station.

Visitors: B. B. Bayles, Cereal Crops and Diseases, Wash., D. C.; Roderick Sprague, Cereal Crops and Diseases, Corvallis, Oregon; H. A. Schoth, and H. Rampton, Forage Crops and Diseases, Corvallis, Oregon; R. S. Besse, and W. A. Schoenfeld, Oregon Experiment Station, Corvallis, Ore.; F. E. Price, Department Agric. Eng., Oregon State College, Corvallis, Ore.; C. A. Suneson, Cereal Crops and Diseases, Davis, Calif.; and E. R. Jackman, Oregon Extension Service, Corvallis, Ore.

Maximum temperature, 99°; minimum, 39°; precipitation for June, 2.35 inches; normal precipitation for June, 1.10 inches.

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REPORT FOR THE WEEK ENDING JULY 11, 1936.

HAVRE:

Only 0.06 inch of precipitation was received during the week, and maximum temperatures all exceeded 90°, the heat being somewhat alleviated, however, by light showers during the morning of the 11th.

Winter rye, early sown oats, and a few early varieties of barley have been harvested for grain. Cultivation of corn was also a field activity. Cutting of spring rye for hay was completed in general farm fields.

Grasshoppers have practically destroyed many plots of barley and badly damaged wheat and oats in the dry land field. Jackrabbits are damaging stands of corn, despite efforts to poison them off. Says plant bug is present in large numbers on all small grains.

Visitors during the week included G. Allen Mail and A. L. Strand, Department of Entomology, Bozeman; J. M. Stephens, Northern Great Plains Field Station, Mandan; and M. P. Hansmeier, Montana Seed Growers Association, Bozeman.

Maximum temperature, 101°; minimum, 61°; precipitation, 0.06 inch.

HUNTLEY:

Although mean and maximum temperatures were comparatively high throughout the last week, the week as a whole was not so hot as the preceding one. Row crops wilted during the warmest part of the day, and grain crops which had escaped grasshopper destruction dried ripe. Harvesting was begun to save as much of the surviving grain as possible from further insect injury.

Weeds continue to make a fair growth in the fields despite drought and high temperatures, necessitating repeated cultivation and hoeing of fallows, roads, alleys, and row crops. Some spring seedings of alfalfa and crested wheatgrass which were destroyed by grasshoppers were disked up to kill a heavy growth of weeds which had sprung up in the damaged plots.

Weights were taken of the hogs on pastures and showed diminished gains for the last two weeks as compared to the previous pasture period. The slowing up in gains was probably largely due to the high temperatures when the animals would not graze, rather than to a lack of palatable forage.

Station visitors during the week included, C. E. Leighty, J. M. Stephens, Leroy Moomaw, M. A. Bell, and J. L. Sutherland, all of the Division of Dry Land Agriculture.

Maximum temperature, 105°; minimum, 59°; precipitation, 0.15 inch.

SHERIDAN:

Maximum temperatures below 100° were recorded for two days of the past week. Grasshoppers were poisoned again, and although large numbers were killed in places, damage to crops, especially barley, oats, and corn, increased greatly. Where barley and oats might otherwise have made a little crop, it was necessary to harvest quite green in order to save anything at all from the grasshoppers. Practically all grain on the station that will be harvested at all was cut during

the week, excepting the varieties of spring wheat and the varieties of oats later than Markton. Except with winter wheat, it is doubtful if enough was obtained from most plots, except grain on fallow, to record even a total weight for the crop.

Other work during the week consisted in hauling manure and cleaning deadwood out of the shelter belt. Sheep were weighed and allowed into stubble fields where the small amount of crop obtained had been hauled. Irrigated grain in this section still looks good, but heavy damage by grasshoppers is reported in many places, in some cases amounting to the greater part of the crop before it could be harvested.

C. E. Leighty and Leroy Moomaw were at the station on the 9th. Maximum temperature, 107°; minimum, 60°; precipitation, 0.02 inch. The mean temperature for the first 10 days of the month was about 82°, 4° higher than the highest previously recorded and 13° above the average for the same period.

MANDAN:

Agronomy - Continued drought and the hottest weather of record tells the story of the past week. The maximum temperature reached 115° on July 6. The previous high for this station was 110° on July 9, 1921. The heat of the 6th was by far the worst of record. Hot wind started by 10 o'clock in the morning and did not let up until nearly dark. There has now been 6 consecutive days with temperatures ranging from 105° to 115°. Nearly all crops are burned so badly that it is doubtful if rain would be of much help.

Grasshoppers seem the worst of record. Poison has been scattered and many killed, but they keep moving in from outside.

The rainfall for June was 0.43 inch, the lowest June of record for this station and area. The total for April, May, and June was 0.95 inch, an all time low. The total for 6 months was 3.40 inches, which is less than that for any previous April, May, and June.

Maximum temperature, 115°; minimum, 65°; precipitation, none.

Cooperative Grazing Experiment - The cattle put in most of the day in the shade and graze a little at night. They cannot be putting on much gain. They are using plenty of water.

BELLE FOURCHE: (Report for the two weeks ending July 11, 1936.)

The weather during the past two weeks was the warmest in the history of the station. There were 10 days with temperatures above 99°, and hot winds were of frequent occurrence. Maximum temperatures of 100° or higher occurred on 9 consecutive days, more than doubling the previous record of 4 successive days with temperatures of 100° or more. The previous record high temperature of 109° was equalled on July 5, and exceeded by 1° on July 6. Relief from the unprecedented heat wave was finally afforded by light showers and a sudden drop in temperature late in the afternoon of July 11. No rains heavy enough to be of material value to crops were received, but 0.47 inch precipitation was recorded in a torrential rain of short duration on July 8. The soil was wet to a depth of about an inch, but was dry again by the following day.

Small grain dried rapidly, and harvesting of the few plots which attained sufficient growth to justify cutting is nearly completed. Corn withstood the hot, dry weather remarkably well, but the crop is suffering seriously from lack of moisture, and it is doubtful if many of the plants will be able to complete tasseling.

Blister beetles, leaf hoppers, grasshoppers, and other injurious insects have become unusually troublesome, necessitating frequent dusting or spraying of foliage and distribution of poison bait. Grasshoppers are migrating in large numbers, and it is practically impossible to control the pests with poison bait. A cloud of migrating grasshoppers, attracted by street lights, settled down upon the town of Newell the evening of July 10, completely covering street pavements, walks, and sides of buildings near arc lights and other bright lights. Nearby towns of Vale and Belle Fourche were reported to have experienced similar grasshopper visitations.

Work has commenced preparing the rig and other equipment for drilling the station artesian well deeper. The well was drilled to a depth of 2,600 feet in the fall of 1934, but the water obtained proved to be unsuitable for both household and irrigation purposes. Additional P.W.A. funds were secured, and it is planned to sink the well down to the Minnelusa sandstone at an estimated depth of 3,700 feet.

Visitors at the station were, C. E. Leighty and Leroy Moomaw.

Maximum temperature, 110°; minimum, 50°; precipitation, 0.56 inch

ARCHER:

The weather during the week ending July 11 was hot and dry with some cloudiness and a very light shower totaling 0.05 inch. All crops except beans and the late seeded Sudan grass and millet are in a serious condition due to the drought. The late seedings of Sudan grass and millet were made June 22 and 23. Notwithstanding the very dry condition of the surface soil at the time these crops were seeded, good stands have been produced and growth has been rapid.

On this date 20 acres of Horn barley are being cut for hay. This crop is expected to yield about 1,500 pounds per acre. Favored spots are being reserved for seed.

The seasonal campaign against weeds at the station is drawing to a close. The row crops in the rotation plots received the second cultivation and have been hoed. The 40 acres of corn in the dairy were cultivated crosswise.

W. L. Quayle and Governor L. A. Miller visited the station July 9 and 11, respectively.

Maximum temperature, 98°; minimum, 50°; precipitation, 0.05 inch.

NORTH PLATTE:

Hot, dry weather continued this week accompanied by strong southerly winds. A light shower fell at the station on Wednesday evening, but no rain was recorded at the agronomy farm.

The harvesting of the oats and spring wheat variety plots completed the cutting of all the small grain. Grasshoppers have seriously damaged the oats, in some plots a large percentage of the panicles were clipped. Bagging of tassels and silks of the inbred corn was started this week. The hybrid corn and potato plots have been irrigated again.

K. S. Quisenberry and G. T. Webster arrived from Lincoln to supervise the harvesting of the wheat, oats, and barley nurseries. The late varieties of wheat were quite shriveled, the oats were light, and the barley was light and chaffy.

Dr. Parker from Manhattan, Kans., and E. H. Coles and J. B. Kuska from the Colby Station, were visitors this week.

Maximum temperature, 101°; minimum, 69°; precipitation, 0.04 inch.

AKRON:

Hot, rainless weather continued through the past week. As yet, however, corn is able to recover a turgid condition of the leaves by morning, and the color remains good. The earliest seeded corn is beginning to show tassel at about knee height. There has been no rainfall since about June 10, and faulty stands of beans, soybeans, and potatoes have not been corrected, the seed lying in dry soil. Station late spring seeded crops on the whole are promising, however, and are yet in position to profit by rainfall, but it looks now as if the limit of endurance might be reached in another week to 10 days.

Field Day was held Thursday with a very nice crowd of about 400, despite the fact that harvesting is actively in progress throughout this section. With fine cooperation from the State College officials, the crowd was handled efficiently and the day was generally considered successful. One of the interesting demonstrations was that of pasture land terracing arranged by the Soil Conservation Service, Colorado Springs. Afternoon speakers were Governor E.C.Johnson,E.P.Sandsten,and Plant Breeder, D.W.Robertson.

Plant pests are rampant. Blister beetles are so numerous as to be on practically every pig weed. Grasshoppers are still menacing on the station, despite the scattering of apparently ample quantities of poisoned bran. Green bugs (beetles) are abundantly present on the grain being harvested. Earlier, a flea beetle defoliated the radishes in the garden. Squash bugs, the big odorous kind, are planting copious egg clusters on the leaves of the squash.

Four of the past seven days have had a maximum of 100° or above. Maximum temperature, 103°; minimum, 60°; precipitation, 0.02 inch.

COLBY:

This week has been hot, windy, and dry. At times it has been hazy and dusty with occasional soil blowing. All row crops wilt every day. Grasshoppers and rabbits are damaging corn, and in many cases the sorghums, very seriously. Winter wheat harvest is in full swing. Most of the wheat over the county is making between less than a bushel to 5 bushels to the acre and is badly shriveled, testing between 40 and 50 pounds. In more favored localities there are occasional fields which are yielding as high as 15 bushels with the test weight as high as 57 pounds.

The D.L.A. plots were threshed today. The M.C. C plot of barley yielded 0.6 bushel per acre and tested 22 pounds to the bushel. The oat yields ranged from 0.9 bushel on the continuously cropped plots to 7.5 on the M.C. C plot. The M.C. C plot tested 20 pounds. None of the spring wheat plots produced any grain, and all except the M.C. C plot of barley were failures. The only plot of winter wheat which was harvested also failed to yield any grain.

Maximum temperature, 104°; minimum, 60°; precipitation, none.

HAYS:

Dry, hot weather continues and south to southwest winds have been almost continuous throughout the week. Corn is wilting badly every day, but has not suffered seriously from the drought or heat although the growth has been retarded. It is now about 15 inches high. It is suffering, however, to considerable extent due to grasshopper invasions. A number of plants have been lost due to this cause. The sorghum crops continue to survive drought and heat very well. The grasshoppers thus

far have not damaged these crops. Kafir and milo row crops are about 8 inches high. Alfalfa on the sod plots has not made any growth since the first crop was cut. The newly seeded alfalfa is suffering extremely from drought and heat, and it now looks to be damaged beyond recovery. Newly seeded bromegrass is also damaged by drought, perhaps beyond recovery.

Grasshoppers seem to be getting more numerous every day. It appears that another brood is hatching, as many very young grasshoppers are to be seen everywhere. Throughout this area the grasshoppers are damaging the corn severely. They are also stripping the foliage off some of the trees, and in places they are eating the bark from small twigs. The needles on the pine trees in some cases are being cut; many gardens have also been ruined by the grasshoppers. However, judging from the reports that come in from different localities, the injury in this vicinity is not as great as it is in many other places.

Blister beetles are becoming numerous. Several colonies have been found at work on the Experiment Station. I would not say, however, it is a general out-break.

Work during the week consisted of tillage operations leading toward the preparation of a seedbed for winter wheat, cultivation of a few kafir plots, and soil sampling for moisture determinations on many plots previous to the first tillage operation, and upon a number of plots soil samples were taken for nitrate determinations. The grasshopper war has been continued by spreading poison-bran mash.

Maximum temperature, 106°; minimum, 66°; precipitation, none.

GARDEN CITY:

The first rain so far this month came last Tuesday night and amounted to 0.26 inch. Little good was obtained from it though, unless it was the cooling effect. Winds have been fairly high all week, averaging 15.81 miles per hour.

Field work consisted of cultivating the row crops and rod weeding several of the wheat and fallow plots. Moisture samples were also taken on the evaporation plots which were set up this spring for the purpose of studying the amount of evaporation after each rain from different textured soils.

The grasshoppers have not become a serious factor as yet, but plant lice were found on two plots of cowpeas and were sprayed with nicotine sulphate.

Maximum temperature, 101°; minimum, 63°; precipitation, 0.26 inch.

TUCUMCARI:

Temperatures were moderate the past week, with much cloudy weather and high wind movement. A shower of 0.14 inch yesterday brought the 1936 total to 4.75 inches. Cloudiness today indicates the possibility of an impending general rain. This would be of great value to ranges and row crops, both sorely in need of moisture.

Work the past week included completion of all station plot thinning with the exception of the July plantings, cultivation or knifing of practically all plots and increase land, threshing a very light crop of wheat, and a planting of grain sorghums, forage sorghums, and broomcorn on July 6.

Although precipitation this year has been but slightly more than one-half normal, both crops and ranges are in condition to respond to rain and have not been seriously retarded. Temperatures have been

moderate and timely showers have arrived before conditions were critical. There is little available stored moisture, so the season promises a hand-to-mouth condition, but to date the prospects are far from hopeless.

Maximum temperature, 99°; minimum, 60°.

DALHART:

A week of unseasonably high winds has damaged crops in this area. In this connection it was not mentioned last week that a high wind which lasted for about one-half hour on June 29 covered up sorghums on sandy fields in this immediate section. The chief damage from that wind on the station was confined to burning of leaves on sorghums and more especially on cowpeas. These plants have now recovered from that wind. The winds this week have burned the plants on sandy fields, and in many places large acreages are covered up. The damage is largely confined to fields which were planted when the soil was pulverized. In these two counties farmers are discouraged for the most part with crop prospects. In the southeast part of the county the wheat harvest is well under way. This narrow strip has had rain the past two years while the rest of the territory remained dry. Yields are mostly in the 7 to 8 bushels per acre range. Ranges are dry -- the grass on the station would readily burn.

On account of the loose condition of the dry surface soil, cultivation of row plots has been omitted. Weeds have been hoed from the ends of the plots and most of the scattering weeds in the row have been hoed out. Corn is rolling badly during the middle of the day but otherwise appears to be doing nicely. Corn averages 20 inches high and has a good color. Soil sampling shows no moisture in the surface 6 inches but a fair amount through the second foot. Sorghums, while growing slowly, are suckering profusely (as is corn) and have good color.

A fair yield of cherries has been secured. Grapes give promise of seasonable yields; that is, yields will be in keeping with the vigor of the vines for the particular varieties and with the seasonal distribution of rainfall and early wind damage.

Maximum temperature, 99°; minimum, 60°; precipitation, trace.

BIG SPRING:

Good rains varying from 1 to 2 inches were received in several parts of the county during the past week, but the station and the area immediately surrounding it only received a total of 0.45 inch. The ground was so dry that this merely soaked the soil to a depth of 2 or 3 inches, which was of little or no value to row crops.

All row crops are making a vigorous growth at the present time, but a shortage of moisture is reflected in the drilled plots, which are burning somewhat now. Sorghums have reached that stage in their growth when they will require much more moisture for normal development, and if it is not received within a week or so, they will start suffering. Some of the early sorghums like Sooner milo and Standard feterita in the May 15 date of planting are heading now and many others are in the boot.

Station work has consisted of thinning increase milo, hoeing weeds, knifing and cultivating.

Visitors at the station during the week included A. B. Conner, Director of the Texas Station; W. T. Carter, Director of Soil Survey work in Texas; and E. W. Johnson of the Woodward Station.

Maximum temperature, 94°; minimum, 64°; precipitation, 0.45 inch.

LAWTON:

Hot, dry weather continued throughout the past week and sorghums, corn and grasses of all kinds suffered from the lack of moisture. Foliage on the corn is badly fired, and the basal foliage on sorghums is firing to some extent, and considerable heading is noticeable. Cotton has withstood the dry weather in good shape, and plantings made as early as May 15 have been making a fairly good set of fruit. Cowpeas were harvested July 9 in order to save as much of the foliage as possible. A fairly good set of seed was produced this year. As yet the ground is too hard and dry to permit plowing the crop under for green manure. Drilled sorgo in rotations 274 and 275 is severely burned but not beyond recovery to date.

Grasshopper poisoning in Comanche County has been much more extensive during the past week than in any previous period this year. The maximum temperatures since the first of July have ranged from 93° to 99°. No rain of any consequence has fallen since June 5, and stubble ground is too hard and dry to plow.

WOODWARD:

The usual greeting in this section is, "Is it ever going to rain?", or "How are the grasshoppers out your way?". And still this sandhills section of Oklahoma is said by visitors from other places to appear comparatively fresh, and free from drought damage. There are a great many fields that would still be planted to sorghum feed or to Sooner milo should rains occur, but, in general, stands of sorghums over the country are very good. It seems, also, that there is a greater percentage of wheat land being prepared early for fall seeding than for several years past. The price of wheat at present has something to do with this, as well as the fact that farmers are probably better able to prepare land well, than they have been. Grasshopper damage is severe in some communities and especially in alfalfa fields and on cotton. For the most part, however, it is confined to the outside rows of sorghum fields.

Despite the drought, grasshoppers and other discouragements the spirits of farmers seem to be distinctly cheerful.

The principal ornamentals making a good showing on the station at present are the hybrid trumpet vines, plumbago, Anchusa angustifolia, Heckrot's honeysuckle, mallows, spiderworts, vitex, aniscanthus, and flowering willow.

Station work the past week consisted of cultivating row crops, preparing wheat land, scattering grasshopper poison, watering and spraying nursery and ornamentals, and picking tomatoes.

Maximum temperature, 101°; minimum, 65°; precipitation, none.

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WEEKLY STATION REPORTS

OF THE DIVISION OF

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U. S. DEPARTMENT OF AGRICULTURE

JUL 18 1936

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REPORT FOR THE WEEK ENDING JULY 18, 1936.

HAVRE:

Slightly cooler weather earlier in the week changed to much warmer the past three days. No precipitation of consequence occurred. Strong shifting winds on two occasions blew tops off haystacks and damaged several buildings in this locality.

Harvesting extremely light crops of small grains is now in progress. About 25 tons of Russian thistle hay on a nearby field were put up during the week, a rotary rod weeder being used to loosen the thistles which were afterwards raked and stacked. This hay will be used with other roughages or concentrates for winter feeding experiments.

Station visitors included E. G. Davis and G. Larsen of the U.S. Entomological Laboratory at Bozeman; and David Lobdell of New York, who desired information relative to crested wheatgrass seed production on Hill County dry lands.

Maximum temperature, 105°; minimum, 53°; precipitation, 0.01 inch.

JUDITH BASIN:

There has been no rain of importance since June 8, and all crops, including corn, will return very low yields. Corn on fallow is beginning to tassel about 18 inches high. A few plots of oats on the rotations were complete failures, but the majority of them will yield some light grain and were cut the first of this week. The harvest of barley plots and nursery is in progress on the Cereal project.

Grasshoppers are very numerous on the station and are damaging oats and barley to some extent.

The 27th annual Judith Basin Farmers' Picnic was held at the station July 16. A great deal of interest was shown by the farmers and business men in the crested wheatgrass and the dry land pasture experiment. At least 1,500 people were in attendance.

Maximum temperature, 97°; minimum, 48°; precipitation, 0.09 inch.

HUNTLEY:

Showers over the last week end cooled the atmosphere for a few days, but with the close of the present week temperatures have again climbed to the 100° mark or better. The precipitation received was of no value to crops. Harvesting of the dry land grains was completed during the week. Many of the plots were not worth cutting for grain production, as grasshoppers had dropped as much as 90 percent of the heads. No plots escaped injury, but some were damaged more than others. Although severely checked by drought, all plots would have produced a fair yield of grain had the grasshoppers not cut off the heads just as they were ripening.

Corn and sorgo have wilted during the warmest part of the day but as yet have shown little sign of burning. Soybeans have finally been cleaned up by grasshoppers and have been eliminated as hog pasture for this season.

Fall pigs on the alfalfa pastures were weighed and removed to the dry-lot, having reached a marketable size. The alfalfa remaining on the pastures is in fair condition, notwithstanding the drought and heavy grazing to which it has been subjected. Grasshoppers have eaten off the blossoms, so there is no chance of obtaining a seed crop from the aftermath this season.

Maximum temperature, 101°; minimum, 52°; precipitation, 0.72 inch.

SHERIDAN:

Rain on the morning of the 12th was followed by two days of cool weather. The remainder of the week was hot and dry again, although not with as extreme temperatures as earlier in the month. Corn was somewhat revived for the two days it remained cool, but began to fire again as soon as the sun appeared. A little of the corn has now made sufficient growth so that it may be possible to harvest it. Sorgo and Sudan grass apparently made some growth for a few days but are making no growth of consequence now.

Threshing was started on the 17th. All miscellaneous fields of grain sown for feed or seed that were harvested and Kanred in the winter wheat variety test were threshed in less than 6 hours running time. Yields were about as expected, around 2 and 3 bushels per acre of any grain on tillage other than fallow, and of Kanred in the variety test on fallow, 11 bushels.

J. E. Kraus and R. D. Taylor, of the Cheyenne Horticultural Station, were visitors during the week.

Maximum temperature, 102°; minimum, 52°; precipitation, 0.77 inch.

MANDAN:

Agronomy - Heat and drought continued throughout the week. The maximum temperature for the week of July 4 - 10 averaged 107° compared to July 11 - 17 of 103°. The succession of days with a maximum of 100° or over was broken at the end of 8 days, on two days it was below 100°, and on the past three days has ranged from 103° to 111°. The previous record maximum has been broken three times during the month to date.

A few plots of wheat, rye, and a little crested wheatgrass were harvested early in the week. There will be little seed. Grasshoppers continue in large numbers, and are working on the little corn that is left.

The sky clouded up two or three times, but only a few drops of rain fell.

Maximum temperature, 111°; minimum, 58°; precipitation, none.

Cooperative Grazing Experiment - The cattle continue on dry feed and appear in good condition. Most of their grazing is done in the early morning and the later hours of the evening. The day is spent in the shade.

Visitors for the week included, Dr. Rexford G. Tugwell, Chief, Federal Resettlement Administration, accompanied by Gov. Tom Berry, (S.Dak.), Gov. Walter Welford (N. Dak.), Cal Ward, Reg. Director, Resettlement Admin. (Lincoln, Nebr.), Robert B. Cummins, Director, Nat. Emerg. Council (N. Dak.), and other officials. M. M. Hoover, Soil Conservation Service, and J. Allen Clark, H. A. Rodenhiser, and G. A. Wiebe, Cereal Crops and Diseases, were also visitors.

BELLE FOURCHE:

Moderate temperatures and light showers early in the week afforded temporary relief from the excessive heat, but abnormally hot weather prevailed again during the last four days of the week, causing further deterioration of growing crops. Corn has burned beyond recovery on fall plowing, and is beginning to burn on spring plowing. Corn on summer fallow is in fair condition and is the only corn which has succeeded in fully tasseling. The unfavorable weather and extensive injury from blister beetles and grasshoppers have materially retarded development of potatoes.

A great increase in the number of grasshoppers on the dry-land rotation field occurred during the evening of July 15, a migrating swarm apparently having settled on the south side of the field. Poison bait was distributed, but satisfactory control of the pests is impossible.

Harvesting of the remaining plots of small grain was completed. Other field work consisted chiefly of weeding and cleaning up in preparation for the annual picnic held at the station on July 18.

Visitors included J. B. Kuska and family, Colby, Kans., Station.

Maximum temperature, 105°; minimum, 55°; precipitation, 0.11 inch.

ARCHER:

The drought and hot weather continued during the week. At the beginning of the week the temperatures were mild but gradually increased. The total precipitation since June 10 is 0.36 inch. Corn is rolling badly, and some of it is beginning to burn. Small grains on fallow and on other most favorable methods of tillage are still holding on. The remainder of the small grain crop has burned so badly that there will be no harvest. Beans and potatoes are suffering from the lack of moisture. The rotation potatoes were sprayed the second time during the week.

The major part of the work at the station consisted of harvesting and stacking hay. This work will practically be finished on this date. Other work consisted of spraying potatoes, storing the winter's supply of coal, and some miscellaneous hoeing.

K. S. Quisenberry, Division of Cereal Crops and Diseases, and John McElroy, Extension Agronomist of the University of Wyoming, visited the station July 13. C. E. Leighty visited the station July 18.

Maximum temperature, 94°; minimum, 49°; precipitation, trace.

NORTH PLATTE:

Moderately high temperatures prevailed for the first four days of the week, and one light shower was received. During the last three days temperatures have again been abnormally high, with a record of 107° for two successive days.

Corn has held on remarkably well. Severe injury has occurred in spots, but with good rains soon, there would still be considerable recovery.

Threshing has been in progress. Winter wheat yields on the D. L. A. plots which were uniformly cropped last year averaged about 20 bushels per acre. Spring grain yields are very light.

Maximum temperature, 107°; minimum, 62°; precipitation, 0.23 inch.

AKRON:

A storm of short duration and light intensity last week end was followed by cooler weather, but by this week end daily maximums of 100° or above are again the rule. There have been 8 days with a maximum of 100° or above, which is more than during the whole of any July, except in the year of 1934.

The harvesting of a really heavy straw crop is being completed today, Saturday. Nursery harvesting was completed and threshing started Friday afternoon. Seven hundred pounds of poisoned bran was scattered Thursday morning in an effort to kill grasshoppers that had moved from the harvested small grain plots to the corn and other late spring seeded crops. A follow-up scattering of bait was accomplished this morning. The battle with the grasshoppers has been unequal to the

extent that we have had to concede an 8-acre field of foundation Flynn barley located between two native sod areas across the railroad. It has been hard to preserve any green on the meager tops of the recently emerged potatoes because of the myriads of persistent blister beetles. The flight of beet webworm moths now envisions a horde of crawling worms to swarm over all forms of palatable vegetation, beans particularly.

M. S. Morris of the State College, and L. L. Compton, Extension Agronomist for Kansas, and Dean McCammon, County Extension Agent at Dodge City, Kans., visited Tuesday afternoon. D. A. Savage and Wayne Ward, with crew for native sod ecological studies, arrived Thursday. C. E. Kellogg, F. A. Hayes, and E. W. Knoble of the Bureau of Chemistry and Soils, and Lindsey Brown of the State College, visited Thursday afternoon. The latter two are associated with the soil survey being made of this county. F. E. Clements and Mrs. Clements spent Friday afternoon and Saturday morning in the vicinity looking over areas in the course of natural revegetation. J. Roeser, Jr., of the new Rocky Mountain Forest Experiment Station is spending the week end here.

The last three days have registered a maximum of 100° or above. Maximum temperature, 102°; minimum, 54°; precipitation, 0.63 inch.

COLBY:

This week has been hot, dry, and calm. Corn and sorghums are suffering from the heat and drought. Grasshoppers, mostly the big flying kinds, have moved in in hordes and are doing much damage to the corn, and in some instances to the sorghums. Rabbits are numerous and are damaging corn extensively.

The July tillage for winter wheat was done Wednesday and Thursday. The ground was dry and turned up cloddy and dusty. On most of the plots it was very hard, also. The plots were practically all almost bare, as on most of them barley was seeded after the winter wheat had died, and the barley dried up before it had gotten out of the drill furrows. The beans in Rotation 269 are practically dried up.

Maximum temperature, 105°; minimum, 59°; precipitation, 0.53 inch.

HAYS:

Hot, dry weather prevails without interruption. Today, July 18, is the tenth successive day with a maximum temperature of 100° or more.

Corn is now suffering from drought and heat, most severely from the latter. Sorghum crops, although retarded in development, still have possibilities for making a crop. Bottom land alfalfa is making slow growth, upland alfalfa and all native grass pastures are brown.

Corn has suffered considerable damage by grasshoppers. These insects are reducing the already small second crop of alfalfa on the bottom land, there is at this time no prospect of a second crop of alfalfa on the upland. Colonies of blister beetles are becoming more numerous. These insects have completely stripped the leaves off many Russian-olive trees, are working some on the alfalfa, and are adding grief to what is left in gardens.

One thousand pounds of bran converted into poison mash was spread over and around the project during the week for grasshoppers. The results are fairly satisfactory, but the surviving population is entirely too great. The Experiment Station has reconstructed a 20-foot hopper dozer which is now being used on the commercial alfalfa fields with a fair degree of success. Many bushels of grasshoppers have been collected.

During the week sorghum row crops were cultivated, fallow plots upon which there were scattering weeds were surface tilled, and a few blocks of stubble plots were tilled. Soil samples were collected on several plots, and counting of stand of row crops was commenced.
Maximum temperature, 112°; minimum, 65.

GARDEN CITY:

This has been one of the hottest weeks this year but with little wind. Field work consisted of preparing the land for wheat, such as plowing, listing, and one-waying. Row crops were cultivated. The grasshoppers have come in but have done little damage so far, considering the number there are. Both the oil bran and the water bran are being used to see which is more efficient. If the oil bran proves to be just as effective we will use it, since it can be spread any time of the day and will last for several days or even weeks.

Some of the Sudan grass plots are burning considerably, but those that have withstood the drought are beginning to head.

Visitors at the station were F. L. Duley, Senior Soil Conservationist, R. I. Throckmorton, head of the Department of Agronomy at Kansas State College, and Don Cornelius and Luther Jacobson both of the Soil Conservation Service.
Maximum temperature, 107°; minimum, 64°; precipitation, 0.13 inch.

DALHART:

A rain of 1.33 inches the afternoon and night of the 11th came as gentle showers and every bit penetrated the soil where it fell. All row crops have responded wonderfully well this week, and the station plots present a good appearance. All row crop plots, fallow plots, and tree plantings, except two small plantings, were cultivated. Scattering weeds were hoed out of the remaining plots not hoed the week before. The remaining plots were trimmed and most of the stand counts are made. The last date-of-planting of Sudan grass on pasture terraces was made, as was also a late date-of-planting of grain sorghums, millet, and Sudan grass. Since the rain several farmers have planted sorghums for feed. Several have also planted 60-day maize or Sooner milo. While several of the thicker plantings of bluegrama plots show dead seedlings, the general statement can be made that the bluegrama seedlings show a decided tendency to become established early even under dry soil conditions. Row crops on the station have easily doubled in growth the past week. Early planted sorghums are at the knee-high height and corn is waist high. First heads are showing on the June 1 date-of-planting of sorghums. The week has remained warm with a minimum of wind.
Maximum temperature, 96°; minimum, 61°; precipitation, 1.38 inches.

BIG SPRING:

Local rains varying from 0.5 to 1 inch have been received in parts of the county during the past week, but the station and the area with about a 10-mile radius surrounding it remains dry. Cotton is still making a good growth and is starting to bloom. Milo is starting to boot at a somewhat shorter stage than normal. Sorghums are rolling considerably during the heat of the day, but every morning they come out of it and look fairly fresh again.

Many of the May 15 date-of-planting sorghums are heading but will produce poorly developed heads, unless rain is received in the near future.

Two plots of early cowpea varieties were harvested, and some early milo heads were bagged during the week.

Maximum temperature, 97°; minimum, 60°; precipitation, none.

LAWTON:

Abnormally high temperatures were persistent throughout the week. A maximum of 115° was recorded on the 19th, the highest on record at this point, and the average maximum for the 7 days July 13 - 19 was 106.7°. Heat and drought have become a serious menace to southwestern Oklahoma within the past 10 days. Short-grass pastures are no longer producing any feed. In a good many instances water supplies are exhausted. Approximately 50 percent of the wheat acreage was abandoned, and the area harvested yielded an average of 6-7 bushels per acre. Oats with but very few exceptions was practically a failure. Row crops of feed have suffered intensely the past week, and there is but little hope that they will survive present conditions. Early planted cotton has withstood the drought well, but the blooming stage of growth is quite general and squares are shed rapidly under existing temperatures. Late planted cotton has made but little plant growth. Practically nothing was secured from farm gardens because of the spring drought and subsequent hot weather.

Many farmers in Comanche County are in need of assistance. There will be no seasonal income to meet such obligations as seed loans or to finance farm operations this fall.

Station visitors during the week were, R. H. Painter, John Bird, and two Chinese students from the Kansas State College, and V. G. Heller and three members of his staff, A.& M. College, Stillwater.

WOODWARD:

The drought continues accompanied by very high temperatures. Sorghums are wilting badly during the day. The same condition exists in many of them that has been noted before occasionally. The soil has dried out faster than roots have penetrated. A great mass of roots is spreading out near the surface, but there is little penetration to depths where there is the most moisture. Some plants that are nearly dead from drought have moisture under them at no greater depth than 6 inches. We have never had a more extreme case of this kind.

Grasshoppers continue to be a problem, but are being kept well in check by poison bran.

The flowering willow, vitex, aniscanthus, lavender, and trumpet creepers keep up a brave show of bloom. The salvias are just beginning to bloom.

Cultivating and thinning sorghums, scattering out poison bran for grasshoppers, spraying and watering ornamentals, picking tomatoes, and cleaning up station grounds in general comprised the bulk of station work for the week.

Maximum temperature, 109°; minimum, 74°; precipitation, none.

PENDLETON:

Warm weather this week ripened all spring sown crops rapidly, resulting in some pinched wheat on the late seedings. Most of the winter and spring wheats in the varietal trials were cut with the binder this week. All the fallow plots were gone over with the rotary rod weeder, the Russian thistles were beginning to grow quite fast. Pea harvest is about over, a few fields remain to be cut for the canneries, others were too mature for canning and will be left to mature a seed crop.

C. E. Leighty and J. M. Stephens visited the station on July 18.

Maximum temperature, 96°; minimum, 44°; precipitation, none.

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U. S. DEPARTMENT OF AGRICULTURE

Jl.25, 1936.

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REPORT FOR THE WEEK ENDING JULY 25, 1936.

HAVRE:

High temperatures which prevailed during the week, with maxima of 100° or over on five successive days, moderated with a light shower occurring on the evening of the 24th. Harvest of small grains, variety tests, and nurseries in the experimental field, have been almost completed. Corn is suffering badly from drought and grasshopper damage. Stacking of a light crop of second cutting alfalfa is now in progress.

Station visitors during the week included, G. Allen Mail, Assistant Entomologist, Bozeman; J. Allen Clark and A. C. Dillman, Bureau of Plant Industry, U.S.D.A.; and E. J. George and K. Nickerson, Northern Great Plains Field Station, Mandan.

Maximum temperature, 105°; minimum, 61°; precipitation, 0.04 inch.

HUNTLEY:

Mid-day temperatures continued high throughout the week with night temperatures comparatively moderate. The hot and dry weather has put winter wheat in excellent condition for harvesting with the combine, and the machines are at work in all fields where the crop is worth cutting. The best yields reported so far have been 13 bushels to the acre. The grain is shrunken but of high protein content.

Corn has continued to make but little growth. Most of the plants are tasseled out, but as grasshoppers appear to be feeding upon the silks the percentage of fertilization will probably be small. All plants wilt during the warmer parts of the day but freshen up during the night. Sorgo and Sudan grass are also showing the effects of drought, but, like corn, are not yet beyond hope of recovery to the point where they would supply a considerable quantity of forage should rains occur soon.

Hogs in the pasture experiments were moved from the plot of field peas to the plot of soybeans and Sudan grass. As most of the soybeans have been destroyed by grasshoppers, the Sudan grass will supply the only pasturage during this phase of the experiment.

Maximum temperature, 103°; minimum, 57°; precipitation, 0.03 inch.

SHERIDAN:

Other than a few drops of rain falling on the 23rd, no precipitation has been received to alleviate the continued hot and dry weather. There was only one day during the week when the maximum temperature was not 100° or more. Corn is showing more signs of suffering than previously but continues to hold on.

Threshing was finished on the 21st, except for the later varieties of spring wheat and oats which should be finished this coming week. Yields have not been computed, but many plots in the rotations were failures. Much of the grain will have to be cleaned because of thistles to obtain satisfactory weights and test weights.

Visitors: W. L. Quayle, Station Director of the State Farms; J. B. Kuska and family of Colby Station; and A. D. Stoesz, Acting Regional Nurseryman of the Soil Conservation Service, Mandan.

R. S. Towle left Wednesday to attend the summer conference at the Northern Great Plains Field Station.

Maximum temperature, 105°; minimum, 58°; precipitation, trace.

MANDAN:

Agronomy - Drought continued throughout the week. The heat was not excessive as compared with the previous two weeks. Grain plots that could be cut with the binder were harvested early in the week. This was done to remove the straw in order to leave the plots in a uniform condition rather than for grain yield.

Maximum temperature, 103°; minimum, 59°; precipitation, none.

Cooperative Grazing Experiment - The steers continue on their pastures, but feed is getting short in some of them. The cattle cannot be gaining well under the present grazing conditions.

Horticulture - There has been no relief from the drought, and fruit trees and shrubs continue to die or drop their shriveled fruit. Sandcherries are bearing a fair crop of poor quality fruit, but this fruit seems to be one of the best from the standpoint of drought resistance. The sandcherries should be ready to pick in the coming week.

Grasshoppers have caused some damage by eating leaves from trees and potato vines. Many of the grasshoppers have been poisoned.

Almost all leaves of raspberries, currants, and gooseberries are dead. In some cases the plants are attempting to put out a new set of leaves, and may yet live if rain comes. The leaves of Prunus tomentosa are very resistant to hot drying winds.

Arboriculture - E. J. George, in the field inspecting shelter-belt plantings, reports from Malta, Mont., - "The weather still continues extremely hot, which together with the hordes of grasshoppers, have destroyed most plant life. Many tree plantings are still in excellent condition, and constitute the only green thing on an otherwise parched and barren prairie."

A meeting of the scientific staff for the northern group of stations, was held at the station July 24 and 25. A keen interest was shown by the men in attendance in discussing various problems pertaining to the Division of Dry Land Agriculture. The following are the men of the staff, and others, who attended the conference: H. L. Walster, T. E. Stoa, and E. H. Tyner, N. Dak. Agricultural College; C. E. Leighty, O. R. Mathews, and F. A. Coffman, Washington, D. C.; M. L. Baker, North Platte, Nebr.; M. A. Bell, Havre, Mont.; G. A. Mitchell, Pendleton, Ore.; Leroy Moomaw, Dickinson, N. Dak.; A. L. Nelson, Archer, Wyo.; A. Osenbrug, Newell, S. Dak.; A.E.Seamans, Huntley, Mont.; J. L. Sutherland, Moccasin, Mont.; R. S. Towle, Sheridan, Wyo.; L. L. Zook, North Platte, Nebr.; R. C. Newcomer, County Agri. Agent, Morton County, N. Dak.; H. O. Putnam, County Agri. Agent, Burleigh County, N. Dak.; and Geo. A. Will, President, O. H. Will Co., Bismarck, N. Dak.

BELLE FOURCHE:

The weather during the week continued hot and dry, but there were a few days in which cloudy skies checked the rise in temperature. Rain was received the evening of July 25, but the precipitation was too light to be of material value to plant growth. Daily maximum temperatures ranged from 93° to 107°, and were above 100° on three days. Thus far there have been 16 days in July and 20 days during the season in which temperatures of 100° or higher have been recorded, as compared with the previous record of 9 days in July and 19 days for an entire season.

Corn has burned beyond recovery on all cultural treatments, except summer fallow and spring listing, and harvesting of the crop was commenced. Grasshoppers ruined 4 plots of corn and damaged potato vines extensively, but large numbers of the pests apparently migrated

elsewhere over the week end, as approximately 75 percent of the grasshoppers had disappeared from the rotation field by July 27.

Visitors during the week included C. E. Leighty, L. L. Zook, R. S. Towle, A. L. Nelson, J. F. Brandon, Division of Dry Land Agriculture; and M. L. Baker, North Platte Substation.

Maximum temperature, 107°; minimum, 61°; precipitation, 0.26 inch.

NORTH PLATTE:

No rain was recorded this week. To date there has been 0.37 inch of rain for July. The first two days of the week were relatively cool, and on Friday the hopes for rain were heightened when a few dark clouds appeared in the sky and a few drops of rain fell.

All threshing of small grain has been completed. The winter wheat varieties on summer tilled ground yielded an average of about 20 bushels per acre, the spring wheat varieties ranged from 6 to 10 bushels, the barley ranged from 15 to 20 bushels, and the oats were very poor with a wide range of 5 to 23 bushels. Part of the corn variety plats have been so affected by drought that they will be discarded. A few more days of dry weather and all corn varietal work will be ruined.

L. L. Zook and M. L. Baker attended the conference at Mandan this week.

Maximum temperature, 108°; minimum, 61°; precipitation, trace.

AKRON:

Threshing nursery and field plots has been the work of the week. 120 tenth-acre plots of foundation Kanred were finished, and a start was made on the rate and date experiment which is also seeded with Kanred. The 120 plots of Kanred on fallow will average about 25 bushels per acre.

Hot, rainless weather prevailed, favorable but uncomfortable for plot threshing. Five of the past seven days have registered a maximum of 100° or above. This brings the total of such days for the present July to 13, just one less than was experienced during the memorable hot July of 1934. The absolute maximum of 106° also ties the all-time high registered during the season of 1934. There was trace precipitation on four different days of the past week.

Corn is surely suffering now, but other row and sowed crops appear to be holding well. Proso is heading and hence at a critical stage, though not burned.

C. E. Leighty spent Monday and Tuesday forenoon at the station. P. V. Cardon visited a short time Monday then left by car with D. A. Savage for Hays.

Maximum temperature, 106°; minimum, 59°; precipitation, trace.

HAYS:

Hot, dry weather continues. Corn has been damaged beyond hopes of recovery. Sorghums, although retarded in growth, are still healthy and are not so far developed but that rains could still produce normal grain yields.

The war on grasshoppers has thus far been fairly successful in the extermination of those present, but there are more continually coming in, and there seems to be a new brood hatching as there are many tiny hoppers to be found in the roadways and fence rows. Yesterday forenoon there were many insects of various kinds in the air, some of which seemed to be new ones. Men working in the field complained of all

all kinds of insects striking them in the face while at work.
Maximum temperature, 114°; minimum, 65°; precipitation, trace.

GARDEN CITY:

This has been the hottest week so far this year, having five days of 103° and over. Another grasshopper invasion occurred last Saturday night, but they have done little damage on the Dry Land project, except on the Sudan grass which has been injured somewhat. We are using the oil bran altogether now since it proved just as effective as the water bran.

The milo and kafir are holding their own during the drought, but the corn and Sudan grass are pretty well burned.

Visitors were T. C. Hirsch and B. F. Dow from the School of the Ozarks at Hollister, Mo., and A. G. Van Horne from Woodward.
Maximum temperature, 109°; minimum, 63°; precipitation, trace.

TUCUMCARI: (Report for the two weeks ending July 25, 1936.)

Crops and ranges are in the most promising conditions in years, following rather general rains early in the month. Precipitation this month to date is 4.35 inches, 2 inches above normal for the month, and the highest July precipitation on record over a period of 31 years. Total for the year to date is 8.81 inches, practically normal for these 7 months, lacking a few days.

A torrential rain of 3.38 inches, falling within the period of 7 p.m. to 12 midnight July 11, washed increase land and plots considerably and was no doubt of less value than half that amount falling slowly. On many plots, washed out and buried seedlings were found, but during the past two weeks of favorable weather the damage has been largely erased.

Wind velocity has been low, with normal temperatures predominating. Field work has consisted primarily of cultivating; weeds have been mowed and tree rows, orchard, and vineyard worked as required.

Rainfall has apparently been unusually low from 100 to 150 miles north of Tucumcari, ranges and crops near Springer, between Springer and Clayton, and a considerable distance south being in much poorer condition than in the locality nearer Tucumcari. Usually Springer is an excellent range area. Considerable wheat is being harvested in the locality of Mosquero and Roy, while row crops and ranges are the best in several years from Roy, 100 miles north of Tucumcari, clear to Tucumcari and south.

While the drought area of eastern New Mexico is not a thing of the past, it is reduced in size and many local spots have practically regained their normal appearance. From observation and reports, it is believed that the majority of the wheat-growing sections will be in excellent condition for wheat seeding this fall.
Maximum temperature for the two weeks, 98°; minimum, 59°.

DALHART:

The weather has remained warm and dry during the week. By Wednesday the sorghums and corn had began to wilt rather badly during the middle of the day. There now remains only a limited amount of moisture in the second foot. Every day now that goes without rain reduces the potential yield. Cropped land can probably hold for another 10 days without the plants deteriorating rapidly. In spite of the wilting the station plots still present an excellent appearance.

Heading is well started for the first date-of-planting sorghum plots.

Farms show spotted stands of row crops for the most part, and these in the main are weedy. In the wheat section southeast of the station combining is well along. One-waying still seems to be the favored way for preparation of land after harvest.

R. I. Throckmorton of the Kansas Station was a visitor during the week.

Maximum temperature, 100°; minimum, 59°; precipitation, none.

BIG SPRING:

The high point for maximum temperatures this year was reached during the week. This was 108° recorded on July 18 and 19, but this excessive heat spell was of rather short duration, for it was broken the next day by a rain cloud which passed over. A slow rain of 0.50 inch was received on the night of July 20; although this rain lowered temperatures below the 100° mark, it will be of only temporary value to crops. The soil was only wet down about 2 - 3 inches, and this was not enough to revive stuff that was burning.

Late spring plowed plots of all crops are showing very marked effects of the lack of moisture, but the earlier preparations are still holding up fairly well.

Maximum temperature, 108°; minimum, 70°; precipitation, 0.50 inch.

LAWTON:

Heat and drought continue as in the past with increasing damage to vegetation of all kinds. The maximum temperature for the 14 days, July 13 - 26, inclusive, was 104.9°.

Corn on the rotation plots was husked and the stalks cut on the 23rd. Some grain, inferior in quality and in yield, was produced, but is was not mature when harvested. Drilled sorgo in rotations 274 and 275 was harvested July 22. The crop attained a growth of about 1 foot before succumbing to the drought.

At the present time there is but little hope of producing even a meager yield of forage on the kafir and feterita rotation plots. In the chinch bug sorghum resistance project many of the selections that are now in the 4th generation are well headed and some grain, even though small and prematurely ripened, will be produced.

Cotton continues to look pretty good, but high temperatures and the lack of moisture prevent fruiting.

Precipitation since June 5 amounts to 0.17 inch. The shortage in rainfall from January to June 30 amounted to 40.5 percent. If present conditions continue to July 31 the shortage will equal 60 percent.

WOODWARD:

The drought continues with sorghums generally at a standstill and individual plants beginning to fall over and die. The hardship the sorghums are enduring is not lack of moisture in the deeper soil, but superficial rooting which does not allow of the use of deeper moisture.

The leaves of trees are beginning to turn yellow and die. And, as is usual during dry spells, the red spider has become particularly active, especially on the American elm. Grasshoppers are swarming in all around the borders of the station, eating tree leaves and field crops indiscriminately. Spreading poison bran must be repeated every few days around the edge of the station, though the station itself has been pretty well freed of grasshoppers.

The flowering willow, vitex, and trumpet creepers make a bright showing despite drought. Crapemyrtle is just beginning to bloom.

On two days of the week the maximum temperature was less than 100°, which gave crops and people some relief.

Station work during the week included spraying trees, shrubs and cowpeas; spreading grasshopper poison; fanning wheat; watering and hoeing ornamental plantings and nursery; and picking tomatoes. The first ripe grapes of the season were picked yesterday.

P. V. Cardon and D. A. Savage of the Forage Crops Division were station visitors during the week.

Maximum temperature, 110°; minimum, 64°; precipitation, 0.02 inch.

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